

USSN 09/847,134

Attorney Docket No. 0994.00131

**VERSION SHOWING MARKED CHANGES****IN THE CLAIMS:**

1. Canceled.
2. Canceled.
3. (Previously Presented) A compound comprising a metal complexed with a chelating group attached to a gastrin releasing peptide (GRP) receptor agonist, the gastrin releasing peptide receptor agonist including a bombesin agonist binding moiety, said compound having a structure of the formula X-Y-B wherein X is a metal-chelating group, Y is a spacer group or covalent bond and B is a gastrin releasing peptide receptor agonist which includes a bombesin agonist binding moiety and Y is selected from the group consisting of at least one amino acid residue, a hydrocarbon chain and a combination thereof.
4. (Currently Amended) The compound of claim 3 wherein X is selected from the group consisting of DOTA, DTPA, S4, N3S, N2S2, and NS3 and derivatives thereof.
5. (Original) The compound of claim 4 wherein Y is selected from the group consisting of at least one amino acid residue, a hydrocarbon chain and a combination thereof and B is selected from the group consisting of BBN(7-14) and BBN(8-14).
6. (Currently Amended) The compound of claim 4 wherein X is DOTA ~~or a derivative thereof.~~
7. (Original) The compound of claim 6 wherein Y is selected is selected from the group consisting of at least one amino acid residue, a hydrocarbon chain and a combination thereof and B is selected from the group consisting of BBN(7-14) and BBN(8-14).
8. (Original) The compound of claim 7 wherein Y is a combination of L-glutamine and a hydrocarbon chain.
9. (Original) The compound of claim 8 wherein Y is a combination of L-glutamine and a C1 to C10 hydrocarbon chain.
10. (Original) The compound of claim 9 wherein Y is selected from the group consisting of glycine,  $\beta$ -alanine, gamma-aminobutanoic acid, 5-aminovaleric acid (5-

USSN 09/847,134

Attorney Docket No. 0994.00131

Ava), 6-aminohexanoic acid, 7-aminoheptanoic acid, 8-aminooctanoic acid (8-Aoc), 9-aminononanoic acid, 10-aminodecanoic acid and 11-aminoundecanoic acid (11-Aun).

11. (Currently Amended) The compound of claim 4 wherein X is N3S ~~or a derivative thereof~~.

12. (Original) The compound of claim 11 wherein Y is selected from the group consisting of at least one amino acid residue, a hydrocarbon chain and a combination thereof and B is selected from the group consisting of BBN(7-14) and BBN(8-14).

13. (Original) The compound of claim 12 wherein Y is gly-ser-gly.

14. Canceled.

15. (Previously Presented) A complex comprising a metal and a compound having a structure of the formula X-Y-B wherein X is a metal chelating group, Y is a spacer group or covalent bond and B is a gastrin releasing peptide (GRP) receptor agonist, the GRP receptor agonist including a bombesin agonist moiety and the metal is selected from the group consisting of transition metals, lanthanides, auger-electron emitting isotopes, and  $\alpha$ -,  $\beta$ - or  $\gamma$ -emitting isotopes.

16. (Previously Presented) The complex of claim 15 wherein the metal is selected from the group consisting of:  $^{105}\text{Rh-}$ ,  $^{99\text{m}}\text{Tc-}$ ,  $^{186/188}\text{Re-}$ ,  $^{153}\text{Sm-}$ ,  $^{166}\text{Ho-}$ ,  $^{111}\text{In-}$ ,  $^{90}\text{Y-}$ ,  $^{177}\text{Lu-}$ ,  $^{149}\text{Pm-}$ ,  $^{166}\text{Dy-}$ ,  $^{175}\text{Yb-}$ ,  $^{199}\text{Au-}$  and  $^{117\text{m}}\text{Sn-}$ .

17. (Currently Amended) The complex of claim 16 wherein X is selected from the group consisting of DOTA, DTPA, S4, N3S, N2S2, and NS3 ~~and derivatives thereof~~.

18. (Original) The complex of claim 17 wherein Y is selected from the group consisting of at least one amino acid residue, a hydrocarbon chain and a combination thereof and B is selected from the group consisting of BBN(7-14) and BBN(8-14).

19. (Currently Amended) The complex of claim 16 wherein X is DOTA ~~or a derivative thereof~~.

20. (Original) The complex of claim 19 wherein Y is selected is selected from the group consisting of at least one amino acid residue, a hydrocarbon chain and a combination thereof and B is selected from the group consisting of BBN(7-14) and BBN(8-14).

21. (Original) The complex of claim 20 wherein Y is a combination of L-glutamine and a hydrocarbon chain.

USSN 09/847,134

Attorney Docket No. 0994.00131

22. (Original) The complex of claim 21 wherein Y is a combination of L-glutamine and a C1 to C10 hydrocarbon chain.

23. (Original) The complex of claim 22 wherein Y is selected from the group consisting of glycine,  $\beta$ -alanine, gamma-aminobutanoic acid, 5-aminovaleric acid (5-Ava), 6-aminoheptanoic acid, 7-aminoheptanoic acid, 8-aminooctanoic acid (8-Aoc), 9-aminononanoic acid, 10-aminodecanoic acid and 11-aminoundecanoic acid (11-Aun).

24. (Original) The complex of claim 23 wherein Y is 8-aminooctanoic acid.

25. (Original) The complex of claim 23 consisting of 90Y-DOTA-8-Aoc-BBN(7-14)NH<sub>2</sub>.

26. (Original) The complex of claim 23 consisting of 111In-DOTA-8-Aoc-BBN(7-14) NH<sub>2</sub>.

27. (Original) The complex of claim 23 consisting of 177Lu-DOTA-8-Aoc-BBN(7-14)NH<sub>2</sub>.

28. (Original) The complex of claim 23 consisting of 149Pm-DOTA-8-Aoc-BBN(7-14) NH<sub>2</sub>.

29. (Original) The complex of claim 23 consisting of 90Y-DOTA-5-Ava-BBN(7-14)NH<sub>2</sub>.

30. (Original) The complex of claim 23 consisting of 111In-DOTA-5-Ava-BBN(7-14) NH<sub>2</sub>.

31. (Original) The complex of claim 23 consisting of 177Lu-DOTA-5-Ava-BBN(7-14) NH<sub>2</sub>.

32. (Original) The complex of claim 23 consisting of 149Pm-DOTA-5-Ava-BBN(7-14) NH<sub>2</sub>.

33. (Currently Amended) The complex of claim 16 wherein X is N3S or a derivative thereof.

34. (Original) The complex of claim 33 wherein Y is selected from the group consisting of at least one amino acid residue, a hydrocarbon chain and a combination thereof and B is selected from the group consisting of BBN(7-14) and BBN(8-14).

35. (Original) The complex of claim 34 wherein Y is gly-ser-gly.

36. (Original) The complex of claim 34 consisting of 99mTc-N3S-gly-ser-gly-BBN(7-14)NH<sub>2</sub>.

USSN 09/847,134

Attorney Docket No. 0994.00131

37. Canceled.

38. (Previously Presented) A method of treating patients using radioisotope therapy by administering an effective amount of a pharmaceutical comprising a metal complex with a chelating group with a GRP-receptor agonist, the GRP receptor agonist including a bombesin agonist moiety, the complex comprising a metal and a compound having a structure of the formula X-Y-B wherein X is a metal chelating group, Y is a spacer group or covalent bond and B is a gastrin releasing peptide receptor agonist which includes a bombesin agonist binding moiety.

39. (Original) The method of claim 38 wherein the metal is selected from the group consisting of transition metals, lanthanides, auger-electron emitting isotopes, and  $\alpha$ -,  $\beta$ - or  $\gamma$ -emitting isotopes.

40. (Original) The method of claim 38 wherein the metal is selected from the group consisting of:  $^{105}\text{Rh}$ -,  $^{99\text{m}}\text{Tc}$ -,  $^{186/188}\text{Re}$ -,  $^{153}\text{Sm}$ -,  $^{166}\text{Ho}$ -,  $^{111}\text{In}$ -,  $^{90}\text{Y}$ -,  $^{177}\text{Lu}$ -,  $^{149}\text{Pm}$ -,  $^{166}\text{Dy}$ -,  $^{175}\text{Yb}$ -,  $^{199}\text{Au}$ - and  $^{117\text{m}}\text{Sn}$ -.

41. (Currently Amended) The method of claim 40 wherein X is selected from the group consisting of DOTA, DTPA, S4, N3S, N2S2, and NS3 ~~and derivatives thereof~~.

42. (Currently Amended) The method of claim 41 wherein X is DOTA ~~or a derivative thereof~~.

43. (Original) The method of claim 42 wherein Y is selected from the group consisting of at least one amino acid residue, a hydrocarbon chain and a combination thereof and B is selected from the group consisting of BBN(7-14) and BBN(8-14).

44. (Original) The method of claim 43 wherein Y is a combination of L-glutamine and a hydrocarbon chain.

45. (Original) The method of claim 44 wherein Y is selected from the group consisting of glycine,  $\beta$ -alanine, gamma-aminobutanoic acid, 5-aminovaleric acid (5-Ava), 6-aminohexanoic acid, 7-aminoheptanoic acid, 8-aminooctanoic acid (8-Aoc), 9-aminononanoic acid, 10-aminodecanoic acid and 11-aminoundecanoic acid (11-Aun).

46. (Original) A method of imaging a patient by administering to a subject a diagnostically effective amount of a compound as set forth in claim 1.

47. (Original) The method of claim 46, wherein said method includes administering an effective amount of a complex comprising a metal and a compound

USSN 09/847,134

Attorney Docket No. 0994.00131

having a structure of the formula X-Y-B wherein X is a metal chelating group, Y is a spacer group or covalent bond and B is a gastrin releasing peptide receptor agonist which includes a bombesin agonist binding moiety.

48. (Original) The method of claim 47 wherein the metal is selected from the group consisting of transition metals, lanthanides, auger-electron emitting isotopes, and  $\alpha$ -,  $\beta$ - or  $\gamma$ -emitting isotopes.

49. (Currently Amended) The method of claim 48 wherein X is selected from the group consisting of DOTA, DTPA, S4, N3S, N2S2, and NS3 and derivatives thereof.

50. (Currently Amended) The method of claim 49 wherein X is N3S ~~or a derivative thereof~~.

51. (Original) The method of claim 50 wherein Y is selected is selected from the group consisting of at least one amino acid residue, a hydrocarbon chain and a combination thereof and B is selected from the group consisting of BBN(7-14) and BBN(8-14).

52. (Original) The method of claim 51 wherein Y is gly-ser-gly.

53. (Previously Presented) A method of forming a therapeutic or diagnostic compound comprising the step of reacting a metal complexed with a chelating group with a GRP receptor agonist the receptor agonist including a bombesin agonist moiety.

54. (Original) The method of claim 53, wherein said method includes reacting a metal with a compound having a structure of the formula X-Y-B wherein X is a metal chelating group, Y is a spacer group or covalent bond and B is a gastrin releasing peptide receptor agonist which includes a bombesin agonist binding moiety.

55. (Original) The method of claim 54 wherein the metal is selected from the group consisting of transition metals, lanthanides, auger-electron emitting isotopes, and  $\alpha$ -,  $\beta$ - or  $\gamma$ -emitting isotopes.

56. (Original) The method of claim 54 wherein the metal is selected from the group consisting of:  $^{99m}\text{Tc}$ - and  $^{186/188}\text{Re}$ -.

57. (Original) The method of claim 56 wherein Y is selected is selected from the group consisting of at least one amino acid residue, a hydrocarbon chain and a combination thereof.

USSN 09/847,134

Attorney Docket No. 0994.00131

58. (Currently Amended) The method of claim 57 wherein X is selected from the group consisting of DOTA, DTPA, S4, N3S, N2S2, and NS3 ~~and derivatives thereof~~.

59. (Original) The method of claim 58 wherein B is selected from the group consisting of BBN(7-14) and BBN(8-14).

60. (Original) The method of claim 59 wherein X is DOTA or a derivative thereof and Y is selected from the group consisting of glycine,  $\beta$ -alanine, gamma-aminobutanoic acid, 5-aminovaleric acid (5-Ava), 6-aminohexanoic acid, 7-aminoheptanoic acid, 8-aminooctanoic acid (8-Aoc), 9-aminononanoic acid, 10-aminodecanoic acid and 11-aminoundecanoic acid (11-Aun).

61. (Currently Amended) The method of claim 59 wherein X is N3S ~~or a derivative thereof~~ and Y is gly-ser-gly.